OIPE IAP68
JAN 17 2006
PATENT & TRADEMARK OFFICE

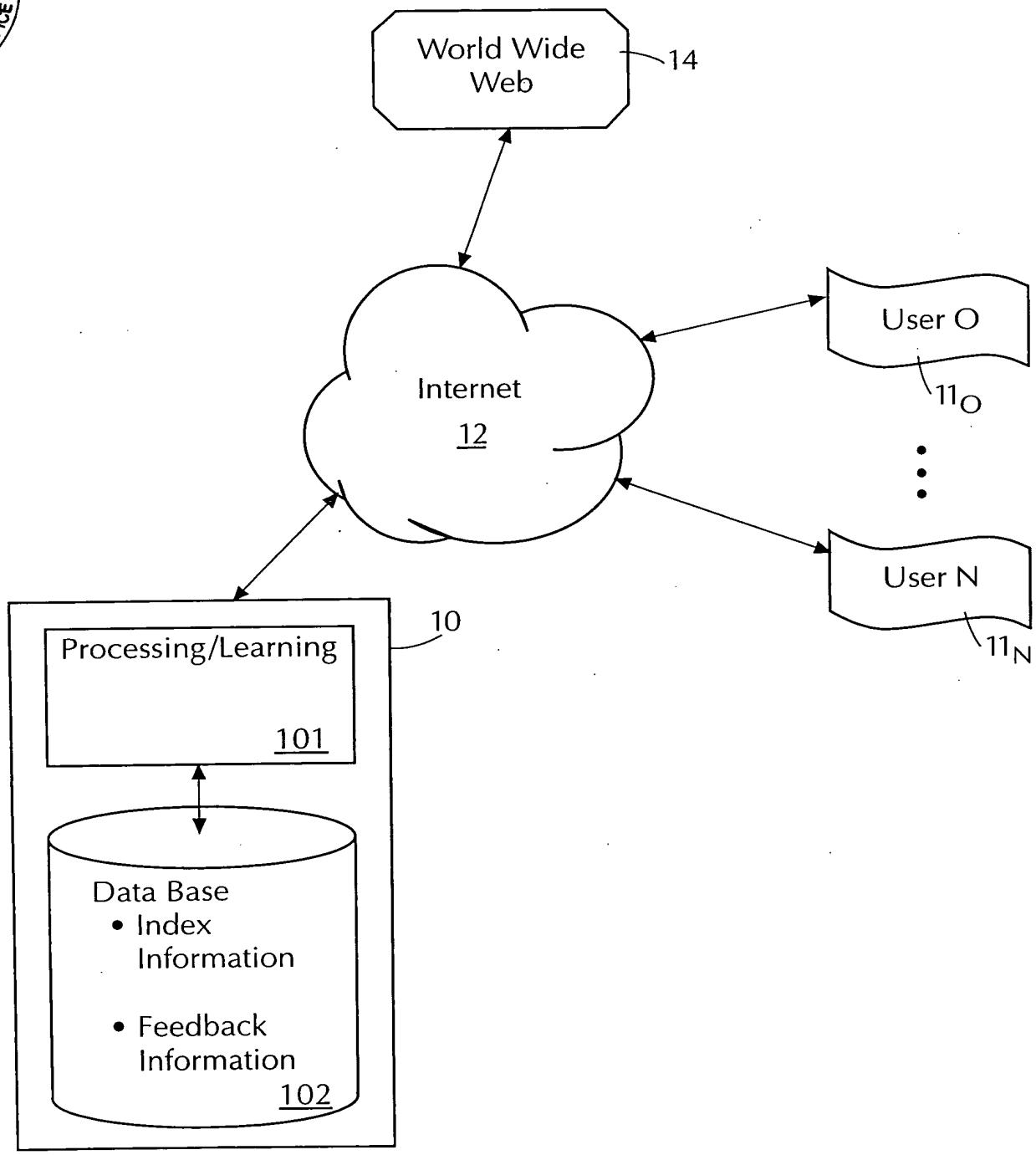

FIG. 1A

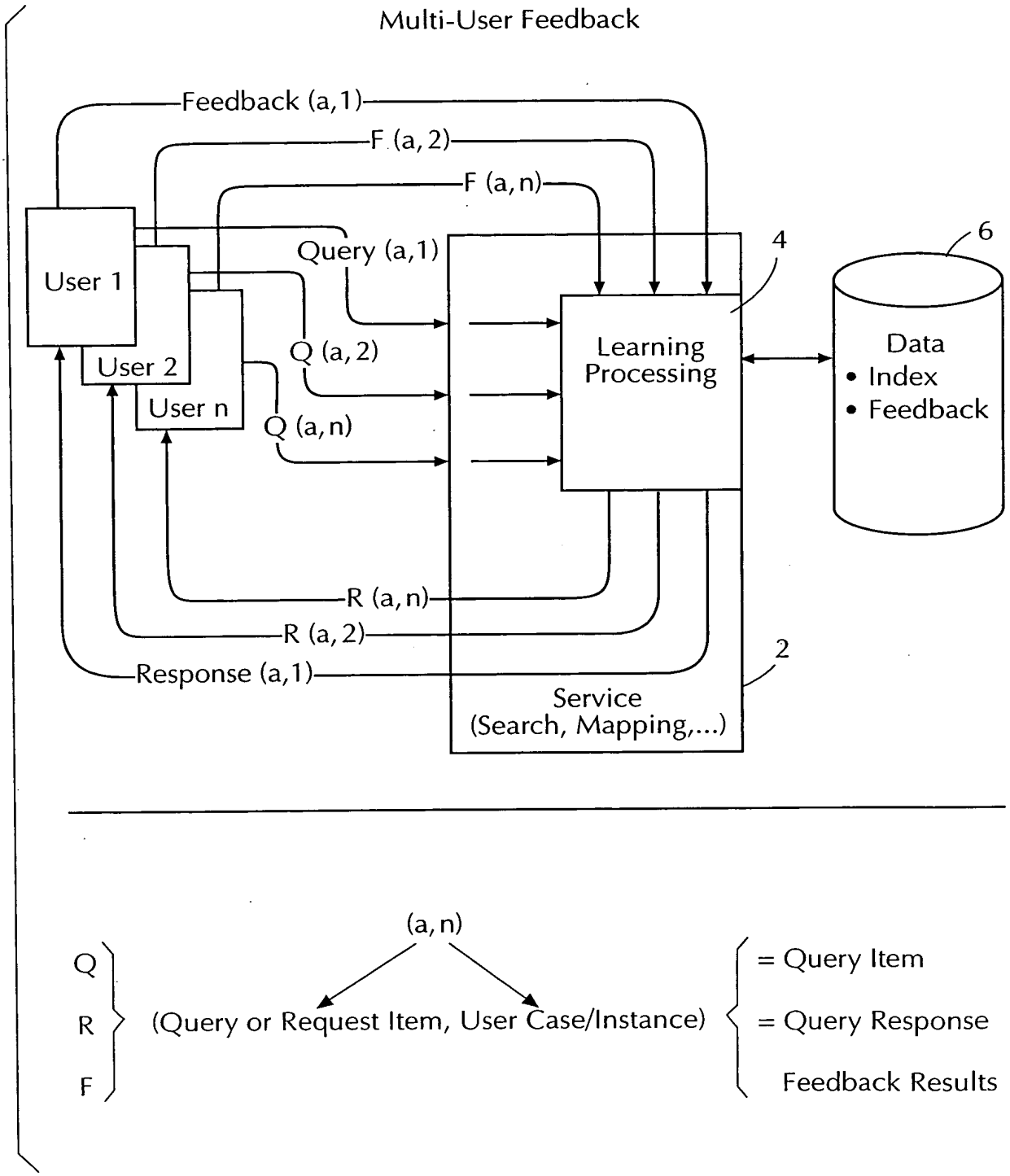
Multi-User Feedback
Feedback (a,1)
F (a, 2)
F (a, n)
Query (a,1)
User 1
User 2
User n
Q (a, 2)
Q (a, n)
Learning Processing
4
6
Data
• Index
• Feedback
R (a, n)
R (a, 2)
Response (a,1)
2
Service
(Search, Mapping,...)
(a, n)
Q
R
F
(Query or Request Item, User Case/Instance)
= Query Item
= Query Response
Feedback Results

FIG. 1B

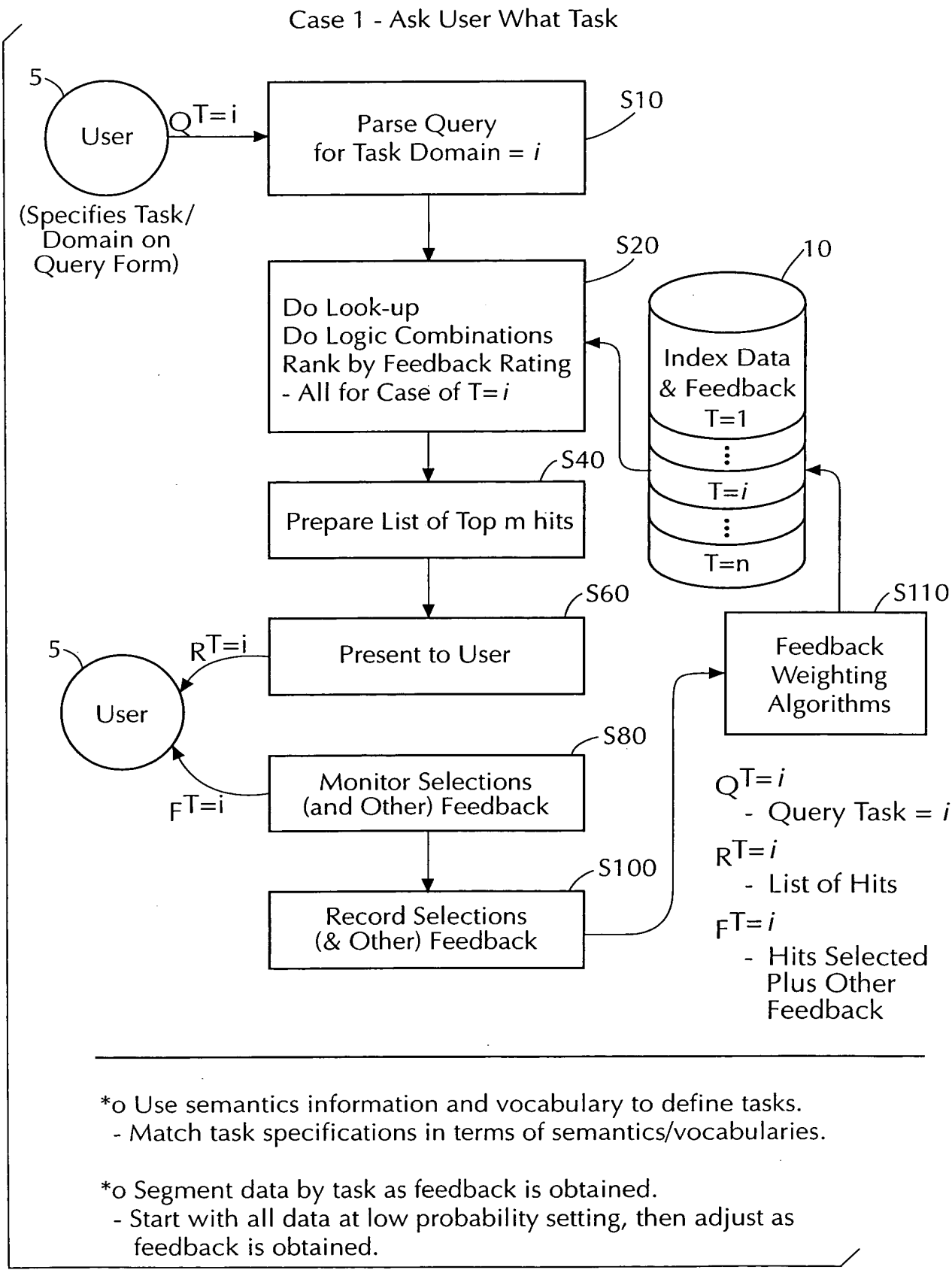
Case 1 - Ask User What Task
5
User
$Q^{T=i}$
(Specifies Task/ Domain on Query Form)
Parse Query for Task Domain = *i*
S10
S20
Do Look-up
Do Logic Combinations
Rank by Feedback Rating
- All for Case of T=*i*
10
Index Data & Feedback
T=1
T=*i*
T=n
S40
Prepare List of Top m hits
S60
Present to User
$R^{T=i}$
5
User
$F^{T=i}$
S80
Monitor Selections (and Other) Feedback
S100
Record Selections (& Other) Feedback
S110
Feedback Weighting Algorithms
$Q^{T=i}$
- Query Task = *i*
$R^{T=i}$
- List of Hits
$F^{T=i}$
- Hits Selected Plus Other Feedback
*o Use semantics information and vocabulary to define tasks.
- Match task specifications in terms of semantics/vocabularies.
*o Segment data by task as feedback is obtained.
- Start with all data at low probability setting, then adjust as feedback is obtained.

FIG. 2

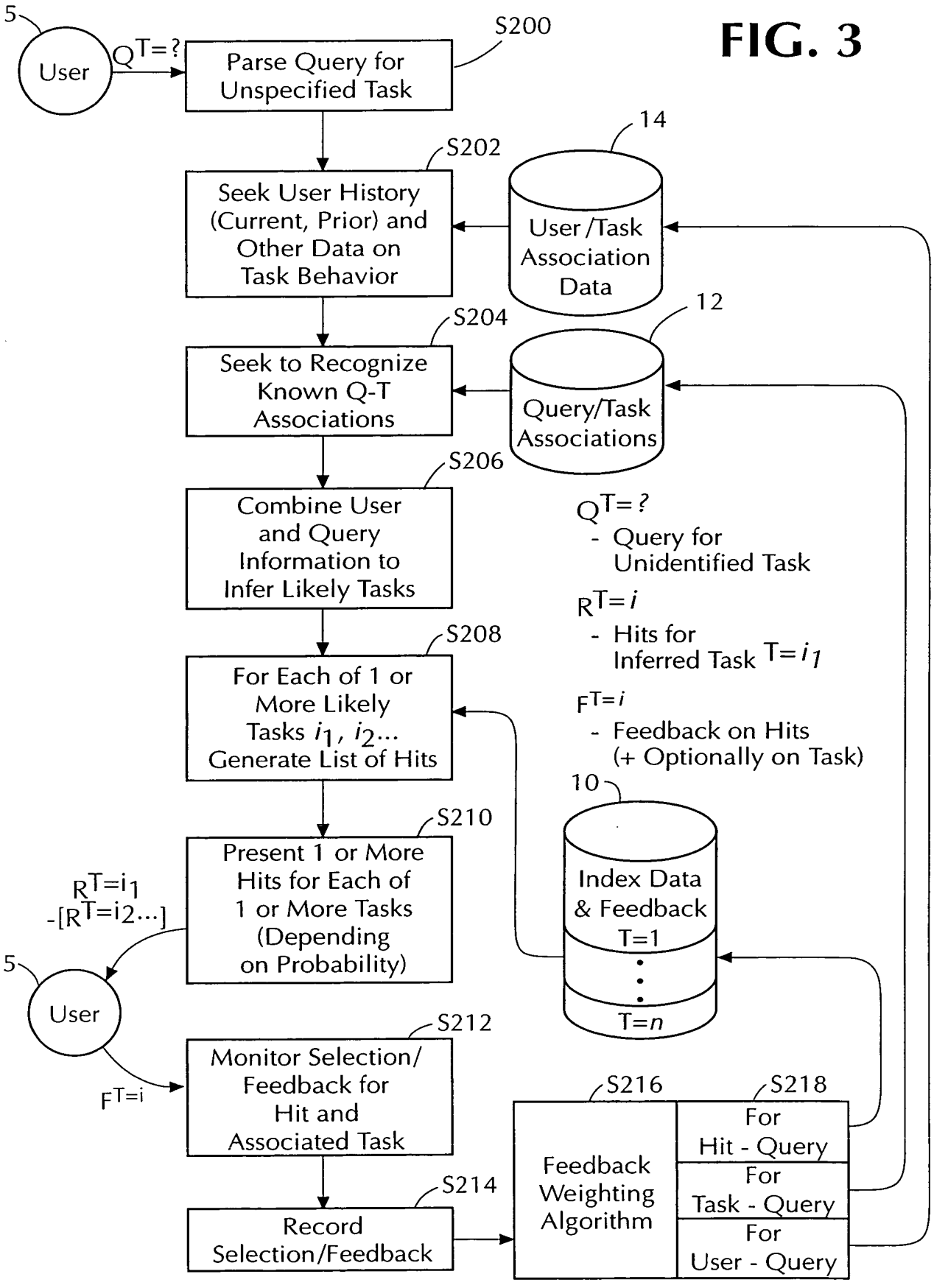
5
User
$Q^{T=?}$
S200
Parse Query for Unspecified Task
14
S202
Seek User History (Current, Prior) and Other Data on Task Behavior
User /Task Association Data
12
S204
Seek to Recognize Known Q-T Associations
Query/Task Associations
S206
Combine User and Query Information to Infer Likely Tasks
$Q^{T=?}$
- Query for Unidentified Task
$R^{T=i}$
- Hits for Inferred Task $T=i_1$
$F^{T=i}$
- Feedback on Hits (+ Optionally on Task)
S208
For Each of 1 or More Likely Tasks i_1, i_2... Generate List of Hits
10
Index Data & Feedback
T=1
T=n
S210
Present 1 or More Hits for Each of 1 or More Tasks (Depending on Probability)
$R^{T=i1}$ -[$R^{T=i2...}$]
5
User
S212
Monitor Selection/ Feedback for Hit and Associated Task
$F^{T=i}$
S214
Record Selection/Feedback
S216
Feedback Weighting Algorithm
S218
For Hit - Query
For Task - Query
For User - Query

FIG. 3

FIG. 4

Index Sample - Task/Domain

Tasks T=	Q's Q (a)	Compound	Pass Targets	Raw Score	Exp. Avail	Probability (Task/Domain)
1	Single Element					
1	Q (a)	0	T1	Sa1T1	Ea1T1	Pa1T1
1	Q (b)	0	T2			
	Compound		⋮			
1	Q (c)	1				
	Single					
2	Q (a)	0				
2	Q (d)	0				
	Compound					
	Q (e)	1				
⋮ n						
	Single					
X	Q (a)	0	T1	SaxT1	EaxT1	PaxT1
X	Q (f)	0	T2			
X	Compound		⋮			
	Q (g)	1				
X_1	Q (a)	0	T1	Sax_1T1	Eax_1T1	Pax_1T1
X_1	Q (b)	0	T2			
X_1	Q (c)	1	⋮			
X_2	Q (a)	0				

Known Tasks

Unknown Tasks

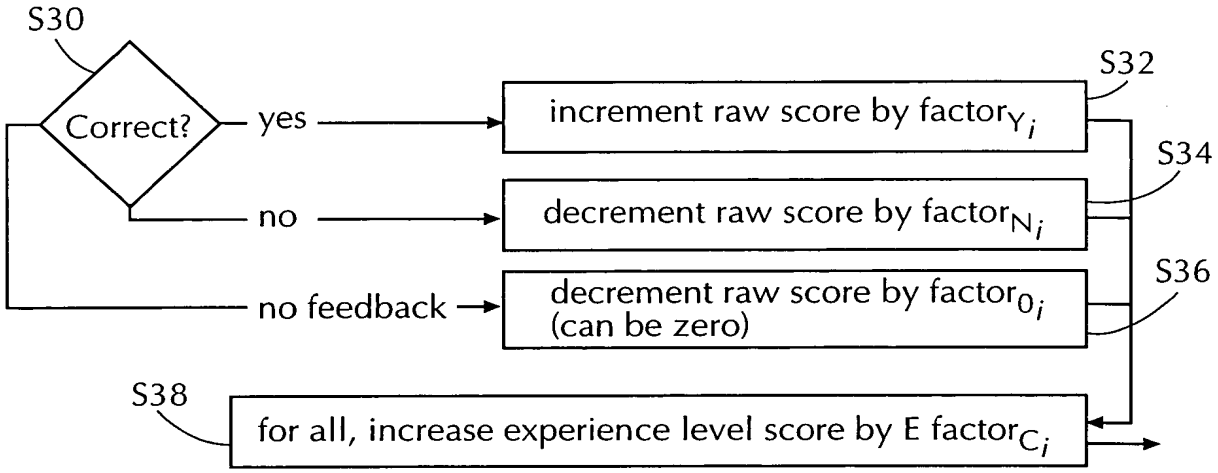
S30
Correct?
yes
no
no feedback
S32
increment raw score by factor$_{Y_i}$
S34
decrement raw score by factor$_{N_i}$
S36
decrement raw score by factor$_{0_i}$
(can be zero)
S38
for all, increase experience level score by E factor$_{C_i}$

FIG. 5A

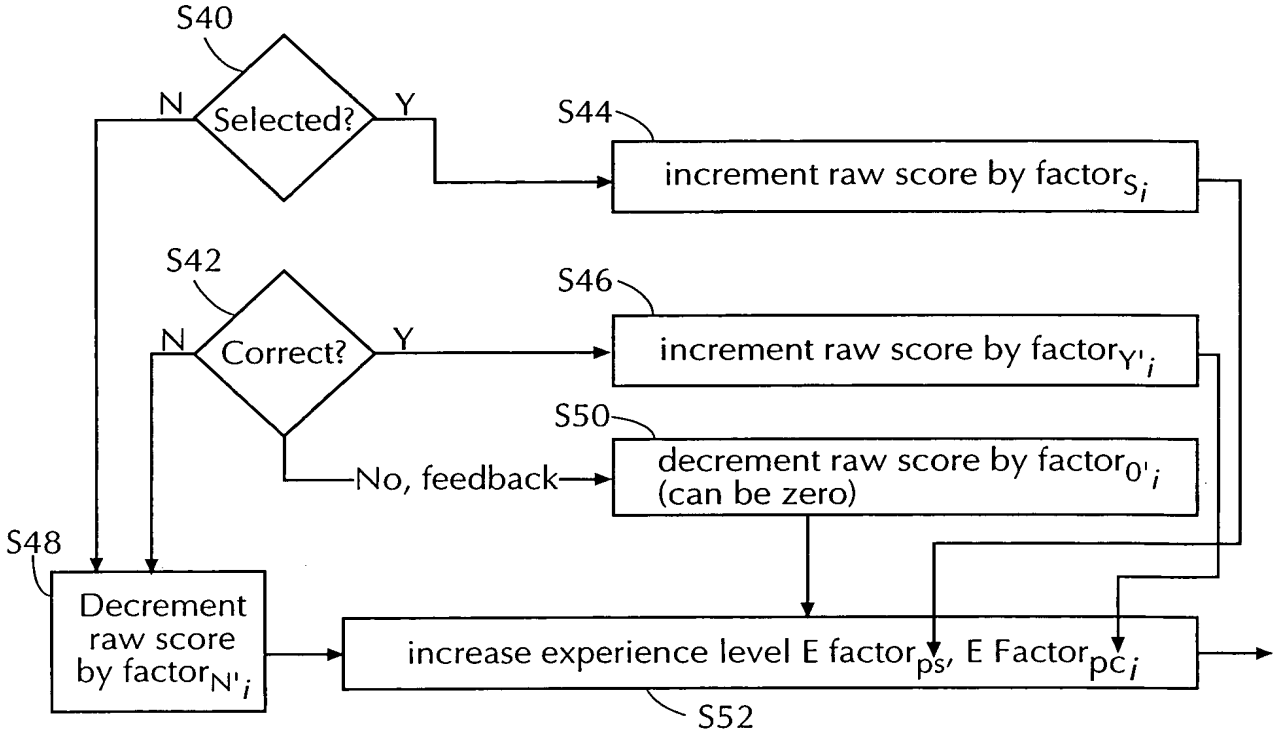
S40
Selected?
N
Y
S44
increment raw score by factor$_{S_i}$
S42
Correct?
N
Y
S46
increment raw score by factor$_{Y'_i}$
S50
No, feedback
decrement raw score by factor$_{0'_i}$
(can be zero)
S48
Decrement
raw score
by factor$_{N'_i}$
increase experience level E factor$_{ps}$, E Factor$_{pc_i}$
S52

FIG. 5B